

CLAIMS

What is claimed is:

1 1. In a wireless cellular communication system comprising a base station
2 and at least one repeater communicating over a wireless backhaul link for
3 communicating with a plurality of mobile subscribers, a method for improved
4 backhaul efficiency, comprising the steps of:

5 dynamically assigning for said backhaul link at least one packet
6 channel for transmission of selected packets on a backhaul signal for a subscriber,
7 said at least one packet channel comprising at least an RF frequency and a channel
8 definition; and

9 transmitting said selected packets on said at least one packet channel
10 between said at least one repeater and said base station.

1 2. The method according to claim 1, further comprising the step of
2 performing said assigning step in response to a request for communicating over
3 said backhaul signal for one of said plurality of mobile subscribers.

1 3. The method according to claim 2, wherein said request include
2 a priority field.

1 0 (4.) The method according to claim 3, further comprising a comparing step
 2 wherein said data priority fields are compared to determine whether to terminate
 3 transmission of a lower priority transmission to allow transmission of a higher
 4 priority transmission.

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 5. The method according to claim 1, further comprising the step of
 2 dynamically reassigning at least a portion of said assigned packet channel for
 3 transmission of a second backhaul signal.

1 6. The method according to claim 1, wherein said channel definition
 2 includes a set of parameters which define said packet channel, said parameters
 3 comprising at least one of:
 4 a. a number of said selected packets which can be sent over said
 5 assigned packet channel; and
 6 b. a number frames allocated for transmission of said selected
 7 packets.

1 7. The method according to claim 6, wherein said channel definition
 2 further includes an identified time for transmission of said selected packets.

1 8. The method according to claim 6, wherein said backhaul signal
2 comprises at least one selected from the group consisting of user traffic and
3 control data.

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al 1 9. The method according to claim 8 wherein said user traffic is
2 comprised of voice traffic.

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1 10. The method according to claim 1, wherein said packets are
2 transmitted over said backhaul link using a higher order modulation as compared to
3 a ground link between said at least one repeater and said subscriber.

1 11. The method according to claim 1, further comprising the step of
2 converting between a packet based backhaul signal and a non-packet based ground
3 link signal.

1 12. The method according to claim 1, wherein said at least one repeater
2 comprises a plurality of repeaters, wherein one of said at least one packet channel
3 is used to transmit packets between multiple repeaters selected from said plurality
4 of repeaters and said base station.

1 13. In a wireless cellular communication system comprising a base station
2 and a repeater communicating over a wireless backhaul link for communicating
3 with a plurality of mobile subscribers, a system for improved backhaul efficiency,
4 comprising:

5 a structure for dynamically assigning for said backhaul link at least one
6 packet channel for transmission of selected packets on a backhaul signal for a
7 subscriber, said at least one packet channel comprising at least an RF frequency
8 and a channel definition; and

9 structure for transmitting said selected packets on said at least one
10 packet channel between said repeater and said base station.

1 14. The system according to claim 1, further comprising a structure for
2 performing said assigning step in response to a request for communicating over
3 said backhaul signal for one of said plurality of mobile subscribers.

1 15. The system according to claim 14, wherein said request include a data
2 priority field.

1 16. The system according to claim 15, further comprising a structure for
2 comparing wherein said data priority fields are compared to determine whether to
3 terminate transmission of a lower priority transmission to allow transmission of a
4 higher priority transmission.

Sub a1 1 17. The system according to claim 13, further comprising a structure for
2 dynamically reassigning at least a portion of said assigned packet channel for
3 transmission of a second backhaul signal.

1 18. The system according to claim 13, wherein said channel definition
2 includes a set of parameters which define said packet channel, said parameters
3 comprising at least one of:

4 a. a number of said selected packets which can be sent over said
5 assigned packet channel; and

6 b. a number frames allocated for transmission of said selected
7 packets.

1 19. The system according to claim 18, wherein said channel definition
2 further includes an identified time for transmission of said selected packets.

1 20. The system according to claim 18, wherein said backhaul signal
2 comprises at least one selected from the group consisting of user traffic and
3 control data.

1 21. The system according to claim 20, wherein said user traffic is
2 comprised of voice traffic.

1 22. The system according to claim 13, further comprising a structure for
2 transmitting said packets over said backhaul link using a higher order modulation as
3 compared to a ground link signal between said at least one repeater and said
4 subscriber.

1 23. The system according to claim 13, further comprising a structure for
2 converting between a packet based backhaul signal and a non-packet based ground
3 link signal.

1 24. The system according to claim 13, wherein said at least one repeater
2 comprises a plurality of repeaters, wherein said structure for transmitting said
3 selected packets on one of said at least one packet channel is used to support
4 communications between multiple repeaters selected from said plurality of
5 repeaters and said base station.